the Michaux Fund, after satisfying the requirements of the preceding resolution, shall be devoted to the cultivation of Oaks of every variety capable of cultivation in our climate, in the Park nursery, which Oaks, to the extent of two of each kind cultivated, be hereafter distributed to other Public Parks in the United States, under proper regulations to be hereafter prescribed.

Attest, DAVID F. FOLEY, Sec. Park Commission.

On motion of Mr. Price, it was then

Resolved, That this Society do agree to the terms contained in the preamble and resolutions of the Fairmount Park Commissioners, adopted on the 12th day of March, 1870, in the expectation and confidence that the planting of the Michaux Grove of Oaks may be soon commenced, so that the Grove shall early become one of the attractions of the Park.

And the Society was adjourned.

COMPARISON OF MECHANICAL EQUIVALENTS.

BY PLINY EARLE CHASE.

Read January 7, 1870.

The comparison of different mechanical equivalents will open a new field for investigation, which may prove to be fertile in valuable results. For example, recent determinations, by the different methods of Thomsen and Farmer, fix the mechanical equivalent of light, in a wax candle burning 126½ grains per hour, at 13.1 foot-pounds per minute, the equivalent of 1 grain being 6.213 foot-pounds. According to Dulong, the heat evolved, during the combustion of 1 grain of olive oil in oxygen, is sufficient to heat 9862 grains of water 1° C. According to Favre and Silbermann, 1 grain of oil of turpentine, burned in oxygen, would heat 10,852 grains of water 1° C.

It may therefore be presumed that the total heat given out by the combustion of 1 grain of wax, is about sufficient to raise 10,000 grains of water 1° C., or 18,000 gr. 1° F. This represents a mechanical equivalence of (18,000 × 772 ÷ 7000 =) 1985.143 foot-pounds, which is 319.5 times as great as the corresponding equivalent of the light given out during the combustion.

Tyndall, in his lecture on Radiation, states that the visible rays of the electric light contain about one-tenth of the total radiated heat. The relative luminous intensity of an electric lamp would therefore appear to be about 32 times as great as that of the wax candle. This ratio so nearly resembles that of solar to terrestrial superficial attraction, and the connection of electric and magnetic currents with solar radiation is so evident, that additional experiments, to furnish materials for a great variety of similar comparisons, seem desirable. While it is possible that the resemblance, in the present instance, may be accidental, the numerous harmonies between the manifestations of cosmical and moecular forces, render it at least equally possible that it may have a weighty significance.